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PROSPECTS FOR INTRA-AFRICAN TRADE IN RAW MATERIALS FOR BASIC INDUSTRIES

Phase III

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PROSPECTS FOR INTRA-AFRICAN TRADE IN RAW MATERIALS FOR BASIC INDUSTRIES

Phase III

I. INTRODUCTION

Origin and background of the study

Africa contains large quantities of raw materials, only a part of which is currently exploited. Such exploitation is in many cases fully or partially controlled by foreign capital. Furthermore, almost all raw materials are used to supply processing plants located outside the continent.

In order to reach the target identified at Lima, according to which Africa is to provide 2 per cent of world industrial production by the year 2000 (as against 0.6 per cent at present), it is clear that considerable efforts will have to be made for Africa to use its resources for its own development.

To achieve this objective, African countries will have to implement a concerted policy and work together closely in the prospection, exploitation, trade and processing of the region's raw materials.

As each African country has different supplies of natural resources, trade in raw materials for basic industries seems to be one of the key links in the autonomous and rational development of the continent.

The Lagos Plan of Action sets out guidelines to help to promote further trade in raw materials for basic industries and to achieve increased intra-African co-operation in developing and monitoring the continent's principal resources.

The Plan provides for the:

Creation of a solid basis for self-sustained industrialization at the national and subregional levels;

Preparation of subregional and regional plans for the establishment of major industrial complexes whose cost and production capacity would exceed national financial and absorptive capacities;

Strengthening and where necessary creation of industrial project financing institutions;

Monitoring of activities of transnational corporations;

Conclusion of trade, monetary and payments arrangements in order to promote trade of finished and semi-finished goods. These arrangements should lead to the reduction or elimination of trade barriers, etc.

It is in this spirit that the present study, the third in a series of studies on intra-African trade in raw materials 1/, will endeavour to analyse the various components of the production of and intra-African trade in raw materials in order to determine production potential and future prospects and identify major obstacles as well as to formulate general recommendations for overcoming these obstacles.

These efforts have met with two kinds of problems:

The inadequacy and even lack of relevant statistical data, probably as a result of the often insignificant volume of trade, which is in most cases, not recorded in statistics, even national statistics. In order to compensate for this inadequacy, export and import statistics for individual countries and products were used;

Owing to the vastness of the continent's resources, which certainly call for further research, a difficult choice of the raw materials to be covered in each of the studies had to be made.

The study has been restricted to the following products: bauxite, aluminium and alumina, zinc and tin. The raw materials covered by this series of studies were selected in part because of their importance and particular situation, but primarily because of the conclusions reached at the fourth Conference of African Ministers of Industry, held at Kaduna, Nigeria, in November 1977, which determined the basic industrial sectors to be considered as priorities in Africa. This order of priorities was reiterated by the fifth Conference of Ministers of Industry held at Addis Ababa in October 1979.

II. QUANTITATIVE STUDIES OF RAW MATERIALS BY PRODUCT

A. Bauxite

A1. Bauxite, aluminia and aluminium production in Africa

Bauxite is produced in Africa almost exclusively by four countries, Guinea, Ghana, Sierra Leone and Mozambique. The United Republic of Cameroon, which has among the largest bauxite reserves in the world, is at this time producing aluminium from alumina imported from Guinea.

1/ The first two studies in the series were:

"Prospects for intra-African trade in raw materials for basic industries (Phase I)" (E/CN.14/IP.1/133).

"Study on intra-African trade in raw materials for basic industries (Phase II)". (E/CN.14/IP.1/134).

Moreover, Africa has a large bauxite potential, given the number of African countries, such as the United Republic of Cameroon, Madagascar, Mali, Malawi, Egypt, Guinea-Bissau, the Upper Volta, the Ivory Coast, Togo, Zaire and Zimbabwe, whose subsoil contains reserves or indices of bauxite.

Data concerning seven of the 11 above-mentioned countries are given in table 1, attached as an annex.

African bauxite production did not start until the 1950s. Production expanded in 1960, 1969 and 1974. Since 1974 there has been a steady increase in the number of tons extracted. Africa's share in world bauxite production increased from 1.6 per cent in 1950 to 15 per cent in 1977 with a production of 19 million tons. Table 3 gives a more complete picture of the development of African bauxite production and Africa's share of world production.

Installed industrial capacity for bauxite production in Africa represents 14.3 per cent (1978 value) of world capacity, distributed as follows:

Guinea	2 994 000 tons of metal equivalent
Ghana	91 000 tons of metal equivalent
Sierra Leone	132 000 tons of metal equivalent

The largest African producer has been and continues to be Guinea, followed by Sierra Leone and Ghana. Guinea has provided the international market with more than 10 million tons of bauxite per year since 1976. Its production more than quadrupled between 1965 and 1977 and in 1977, accounted for 9[illegible] per cent of African production.

Sierra Leone could increase its production in the years ahead; the deposits discovered at Port Labo are estimated at more than 100 million tons to be worked over a period of at least 30 years. The deposit being exploited by SIERRA 30 is located in the Moyamba region and contains about 10 million tons of reserves. In 1979, Sierra Leone supplied 6 per cent (720 000 metric tons) of African bauxite production.

Ghana is in third place with 2 per cent (300 000 metric tons) of production. Ghanian production, after falling off in 1968 and 1969, became stable between 1970 (342 000 metric tons) and 1975 (360 000 metric tons) (1968 index = 100; 1975 index = 116). It seems that it has reached a ceiling, in view of the fact that Awaso deposit discovered in the 1920s will soon be exhausted; drops in the amount of ore extracted in 1976 and 1977 have confirmed this fact. Nevertheless, Ghanaian authorities are interested in other deposits at Icharoo (500 000 tons), Kibi and Nyinahin (900 million tons).

Exploitation of bauxite in Mozambique is localized in the Manica region and takes place on a very small scale. There was a noteworthy change during 1979, with production increasing from 4 000 tons in 1969 to more than 7 000 tons in 1979. However, the impact of the war slowed production down to 5 400 tons in 1977.

The United Republic of Cameroon, although it has major world reserves, does not currently produce bauxite. As seen above, the reserves are found in two regions of the country, in the west, in the regions of Dschang-Bafoussam and the Sabal-Hellé plateau and, in the north, in the region of Minim-Martap. It is calculated, according to 1973 figures, that the United Republic of Cameroon contains about 20 per cent of Africa's bauxite reserves.

Two other deposits were discovered between N'Gaoundéré and Tabati near Minim-Martap and N'Gaoundal, with reserves estimated at about 1 billion tons. At present the deposit is at a disadvantage because of its distance from the sea (900 km by the trans-Cameroonian railway line linking N'Gaoundéré to the port of Douala).

At present the United Republic of Cameroon simply produces aluminium by processing aluminia, some of which it imports from Guinea. The country has assumed this role as a producer because of its hydroelectric potential at Tahmaza.

In Zaire the Société BAUXI-ZAIRE has found bauxite reserves in the Tshela region, which are estimated at about 65 million tons with an average aluminia content of about 35 per cent and a high level of silica.

Al.1 Development of bauxite production in Africa

Production and marketing costs of bauxite vary significantly from one deposit to another owing to numerous factors, such as ore content, elevation of dead ground, nature and level of impurities, access to waterway transport and, finally, taxes and levies on production. Consequently, only some bauxite deposits can, at current prices, be worked profitably.

"New aluminium capacity is also expensive, and the capital costs escalate with the stage of production. The United States Bureau of Mines has estimated that an annual ton of new capacity cost an average of 2 500 dollars in 1974.1/" About 8 per cent of these expenditures correspond to the bauxite stage, 32 per cent to the alumina stage and 60 per cent to the aluminium ingot stage. If, in addition, electric power plant had to be built, the figure would increase from $US 2 500 to between $US 3 100 and $ 3 500. The figures given above are estimates of average costs in 1974. Since then, costs have increased. Moreover, they vary considerably from one project to another according to the location, infrastructure needs and the type of plant and process used as well as other factors.

The Guinean Government is planning to launch a policy for the maximum development of mineral products in Guinea. Consequently 3 million tons of bauxite have been prospected, representing almost two thirds of known world reserves. According to Guinean projections, national bauxite production will reach 25 million tons in 1981, making Guinea the world's leading bauxite producer, ahead of Australia and Jamaica, which are now the first and second world producers.

1/ "Consideration of international measures on bauxite" (CD/B/IPC/BAUXITE/2), p.9.

One of the companies working in Guinea has already reached the stage of the semi-finished product, alumina, with its plant producing 700 000 tons per year.

Another company, the Boké complex, in the north of the country is now working a deposit of 2 billion tons and by 1982 will produce 9 million tons of bauxite per year, of which from 200 000 to 300 000 will be calcined bauxite.

The Guinean bauxite development policy is being pursued in the context of an international consortium. A Swiss company is working the ore at Fougué in the east of the country, a Yugoslav company is extracting the ore at Dobola, and finally a joint Guinean-Soviet company is extracting 2 million tons of bauxite per year at Fria.

Egypt, which launched its third phase of aluminium production undertaken by Nag Hamadi Aluminium at the end of 1975, hoped to attain the goal of 150 000 tons by 1980, the major part of which would be for export.

As regards industrial processing of bauxite, the United Republic of Cameroon was the leader in aluminium production between 1960 and 1970. Today Ghana has taken over the lead in Africa. Moreover, Ghana contains all that is needed for a viable and integrated aluminium and alumina industry. The plant refining bauxite into alumina, managed by the VALCO company, has a 200 000 ton alumina capacity and absorbs more than 1 million tons of bauxite. In addition, a project is being implemented to build a plant at Tibi with an 200 000 ton capacity to process bauxite into aluminium.

African aluminium production increased fivefold between 1964 and 1970, whereas world production doubled in a period of 10 years, from 7 970 000 tons in 1960 to 14 952 000 tons in 1970. However African aluminium production accounts for only 2 per cent of world production. The installed industrial capacity for the processing of aluminium in Africa is about 442 000 tons (1970 value) distributed as follows:

(a)	United Republic of Cameroon	Aluminium Company of Cameroon, Pechiney - Ugine (ALUCAM)	62 000 tons
(b)	Ghana	Volta Aluminium Co. Ltd. (VALCO)	200 000 tons
(c)	Egypt	Nag Hamadi	100 000 tons with prospects for 150 000 tons in 1980

As Guinea is the only African alumina-producing country, its production constitues African alumina production and accounts for 2 per cent of world production. The capacity of the alumina plant at Friguia in Guinea is 700 000 tons.

Although the African continent contains more than 30 per cent of world bauxite reserves, its share of world bauxite production was only 14.42 per cent in 1978. Africa's economic goal should be the development of bauxite through increased production of alumina and aluminium, which now represent barely 2 per cent of world production. Given Africa's considerable potential, the production of semi-finished goods in African countries should be viewed from the point of view of the users in these countries.

Actually, the manufacture of semi-finished goods for consumption in African countries covers a whole range of activities which should be promoted as much as possible, as it is necessary to ensure the parallel development of industries consuming and producing semi-finished goods.

A.2. African exports of bauxite, alumina and aluminium

These products are exported by four countries: Guinea, Sierra Leone, Ghana and the United Republic of Cameroon. The first three countries are both producers and exporters of bauxite, aluminium and alumina (Guinea), whereas the United Republic of Cameroon is a potential exporter of aluminium manufactured from bauxite, which is generally imported from Guinea.

Guinea, whose mining sector has become predominant to the extent that it contributes more than 20 per cent to the formation of GDP and provides more than four fifths of the country's foreign exchange revenues, is by far the first African exporter of bauxite and alumina. According to available information, Guinea has exported an average of 10 million tons of bauxite and more than 2 million tons of alumina per year since 1977. It seems, however, that these figures will be surpassed in the years ahead because of the exploitation of new mines and the expansion of the extraction capacities of existing mines (Boke, Sangarédi, Fria, Kabola and Dougué). According to forecasts 21 million more tons should be produced by late 1980. This goal will surely be achieved as Guinea is well endowed with mineral resources and possesses more than half of the world's high quality bauxite reserves.

Sierra Leone ranks second among African bauxite exporters with an average of about 700 000 tons of exports over the past six years (1972-1977); these exports increased significantly between 1968 (244 000 tons) and 1975 (810 000 tons).

Ghana, whose export volume has practically not changed for 15 years, is considered an important supplier of bauxite on the world market (annual average exported between 1971 and 1976: 340 000 tons).

Mozambique's exports of bauxite are minor as production does not exceed 6 000 tons per year.

With respect to aluminium exports, Ghana and the United Republic of Cameroon together account for 100 million tons of metal (99 244 000 metric tons valued at US$ 50 million in 1976). Exports from the United Republic of Cameroon are nevertheless less significant than those of Ghana. Only Guinea exports alumina, part of which is sent to the United Republic of Cameroon for processing into aluminium metal.

The export situation has varied according to the country concerned. Guinea's export earnings from alumina have been steady without showing any real increase (about one billion sylis per year according to Guinean sources).

Aluminium exports from Ghana and the United Republic of Cameroon did not follow the same pace as in Guinea. Ghana's aluminium exports had actually been rising very fast and reached considerable proportions in 1969, (126 084 tons) and in 1972 (131 794 tons), but subsequently fell (55 789 tons in 1975) and about 70 000 tons in 1976 (US$ 33.25 million).

Cameroonian exports expressed in tons fell considerably between 1966 and 1976. Except for 1969, when there was a slight increase, the drop has almost been steady. Nevertheless, given the increase in aluminium prices on the international market, the decrease in export earnings has not been so significant.

Finally the North African countries export a small, insignificant amount.

It is clear from the above that the aluminium export market in African countries is almost inexistent with the exception of the United Republic of Cameroon and Ghana.

Wealthy bauxite-producing countries are at this time almost the only aluminium suppliers for the following reasons:

(a) Since they are major aluminium consumers, they must first of all meet their own needs;

(b) They are equipped with the capital goods to process bauxite into aluminium which they prefer to export because of its high sales price.

The absence of appropirate financial and technological resources in African countries keeps them out of the international bauxite market. Intra-African aluminium trade is therefore held back, except for bauxite trade between Guinea and the United Republic of Cameroon.

Intra-African trade in bauxite and other similar products is hampered by the fact that the developed market-economy countries have control of deposits in African countries. Such control was obtained through the establishment of consortia, which brought together mining companies in co-operative ventures to counter political risks and benefit from economies of scale.

Through these consortia, there is also a policy to divide up zones of exploitation in terms of economic and even political and ideological interests of the Powers concerned.

The African market is therefore to a large extent only one outlet for the aluminium prodiction of those countries with all the consequences entailed. Furthermore the outstanding characteristics of the commercial framework of the world bauxite, alumina and aluminium industries are the following: concentration of the sector in a small number of large companies, well-developed vertical integration, multinational nature of major enterprises and finally the important although apparently declining role played by foreign interests in the ownership and control of production in countries which produce raw materials.

The major multinational companies involved in the production and marketing of bauxite, aluminia and aluminium are:

Aluminium Company of America (Alcoa)
Reynolds Metals Company (Reynolds)
Kaiser Aluminium and Chemical Corporation (Kaiser)
Alcan Aluminium Ltd. (Alcan)
Pechiney Ugine Kuhlmann (Pechiney)
Aluminium Ltd. (Alussuisse)

All these enterprises are vertically integrated; they extract bauxite, refine alumina, smelt the aluminium lingots and produce semi-finished and finished goods.

The activities of these multinational companies in the economies of raw material-producing countries and their current monopoly position especially as a result of their use of advanced technologies, have restricted the markets open to bauxite products manufactured by potential competitors and do not favour any type of integration of the multinational companies in the economies of the countries concerned. The serious direct and indirect consequences of this situation on the African producers and intra-African trade in this sector are obvious, especially since bauxite and aluminium production constitutes one of the major economic activities of these countries.

With respect to export revenues, multinational companies often catch the producing companies off their guard by setting trasnfer prices at an artificial level, not only to reduce the total amount of taxes, but also to avoid exchange restrictions, reduce the amount of customs duty to be paid to the Government and satisfy the local partners of their foreign subsidiaries.

This practice of transfer pricing in the bauxite marketing system deserves special attention as it is particularly important in developing a just bauxite pricing policy in the context of an international development strategy.

One of the most ticklish aspects of the problem of the distribution of materials subject to taxes in the context of multinational companies in Africa and elsewhere is a result of the practice of transfer pricing Sales by a parent company to a subsidiary abroad or by one subsidiary to another (as is the case in Africa) of intermediate goods used as factors of production by the buyer is carried out on the basis of an internal price called a transfer price.

"Since there is often no market price for the goods in question and their pricing on the basis of cost plus a normal profit raises problems of costing-notably with respect to the allocation of overhead cost - the setting of the transfer price can be quite arbitrary" 1/

It is consequently in this complex and difficult situation that African countries producing bauxite, alumina and aluminium export from 85 to 95 per cent of their respective production.

1/ Ibid., p.18.

A.3 African aluminium imports

Except for the United Republic of Cameroon, which imports small quantities of alumina in addition to aluminium and bauxite primarily from Guinea, about 20 African countries import aluminium, headed by Nigeria, the Ivory Coast, Algeria and Morocco.

The total share of African aluminium imports (in value) with respect to world imports is however very low: 2.3 per cent in 1975, 2.7 per cent in 1977 and 2.4 per cent in 1978. While world imports totaled US$9.9 billion in 1975 and $ 2.06 billion in 1978, African purchases during the same years reached only $207 million and $284 million respectively. Taken as a whole, African imports are nevertheless increasing primarily because of the growing needs of the industries of North African countries as well as Nigeria, the Ivory Coast and the United Republic of Cameroon. These African imports reflect the general trend of imports for developing countries as a whole, which represent less than 18 per cent of total world imports (16.3 per cent in 1976, 17.8 per cent in 1977 and 17.2 per cent in 1978).

These percentages show that aluminium imports remain in the hands of industrialized developed countries in that their share varies between 80 and 85 per cent. It actually reached the following annual figures between 1974 and 1979: 83 per cent, 80.4 per cent, 82.7 per cent, 82.6 per cent, 82.2 per cent and 85.1 per cent.

In 1978 the share of each African aluminium-producing country in total African production was the following: Ghana 52.3 per cent, Egypt 34.3 per cent and the United Republic of Cameroon, 10.3 per cent. These figures might give the impression that intra-African trade in aluminium depends on the supply of these three countries, which is, however, not the case as the three countries export very little in Africa and sell considerable amounts to countries outside Africa.

African aluminium imports (0684)
(Thousands of US dollars

	1974	1975	1976	1977	1978	1979
World	4 539 306	3 995 145	5 156 147	6 622 511	8 066 149	9 962 341
Developed Africa	12 476	20 026	15 944	12 382	19 200	
Share of developed Africa/world (percentage)	0.4	0.5	0.3[a]	0.2[a]	0.2	
Developing Africa	99 446	133 679	128 997	176 446	196 552	
Share of developing Africa/world (percentage)	2.1	3.4	2.5[a]	2.6[a]	2.4	
North Africa	42 096	53 693	42 596	59 901	67 543	

Sources: Yearbook of International Trade Statistics, 1978 (for 1974-1977) and 1979 (for 1978-1979)

a/ Estimates.

B. Tin

B.1. Tin production in Africa

Tin, along with zinc and potassium, is one of the raw materials for basic industries in Africa whose production is weakest. Furthermore it has been steadily declining during the past decade.

In 1965, Africa's share of world production of tin concentrate was about 13.5 per cent; in 1974, 10 years later, it was only 8.7 per cent and in 1977 only 7.1 per cent.

Africa's share of world production of tin concentrates

(Thousands of metric tons)

	1965	1966	1967	1968	1969	1970	1971
World	155.1	167.1	174.2	184.2	179.2	184.5	198.5
Africa	20.8	22.0	21.2	24.4	20.7	19.7	19.1
Percentage	13.5	13.5	12.2	13.2	11.7	9.0	10.4

	1972	1973	1974	1975	1976	1977	1978
World	194.1	198.9	190.5	181.2	179.2	185.1	
Africa	18.0	16.8	15.8	14.9	13.1	13.1	
Percentage	9.3	8.6	8.7	8.2	7.2	7.1	

Source: United Nations statistics, 1978.

Nigeria and Zaire are the major African producers of tin concentrate. However, their production has been steadily declining. Table 10 shows trends for all African countries from 1965 to 1977. Nigeria supplied 46 per cent of the African production of tin concentrate in 1965 with its share declining to 25 per cent in 1977. Surface deposits located in Plateau State, a major tin producer, are becoming depleted. The two major Nigerian mining companies, Amalgamated Tin Mine of Nigeria and Gold and Base Metal Mines (Nigeria) Ltd., are finding it increasingly difficult to work the beds. The risks of exhaustion are growing as underground work progresses, and Nigerian labour prefers to work in the construction industry and public works. Investments are needed to maintain the role played by the production and export of tin in the country's economy. Efforts are being made to further the prospection and exploitation of the underground ore. For example, a tin deposit located at Ririwai in the State of Kano

B.2. Tin consumption in Africa

With respect to the processing of tin ore, available information indicates a certain stagnation, or even a reversal, in the past few years in tin ore manufacturing and heavy industries (foundry).

In fact only Nigeria processes all its production, which is declining, and, as stated above, its processing capacity (18 000 tons) is higher than its rate of extraction, which at present totals less than 4 000 tons of concentrate. Along the same lines, world tin foundry capacity is clearly higher than needs and the construction of new foundries is not planned unless processes which are now under study prove to be much more economical, thus making the old foundries obsolete.

Zaire processes 25 per cent of its production and Zimbabwe processes more than 95 per cent of its tin ore.

These African countries have a small processing capacity because their industrial consumption needs are miner.

Only Egypt and Morocco consume small quantities of tin in their respective industries (see table).

B.3. African exports of tin ore and alloys

African exports of tin ore and alloys are relatively low. The decline in exports of both ore and alloys can be explained by the fact that production is declining in the two countries, Zaire and Nigeria, which posses large quantities of tin ore. A drop in ore exports from the United Republic of Tanzania, Uganda and the Niger has also been recorded since 1969 and 1970. Of the African exporting countries, only Rwanda has maintained and in some years improved its position.

As an example, Zaire , which exported more than 7 000 metric tons of ors and 9 500 tons of tin concentrate in 1969, valued respectively at $US16.5 and 6.2 million, exported only 5 000 metric tons in tin ore valued at $16.62 million in 1976 and 600 tons of alloys worth $2.16 million. The second figure is quite low, in view of the fact that tin prices reached a record high in 1974 and a somewhat lower but still high price in 1976.

Rwanda had exported 1 873 metric tons valued at $3.58 million in 1968 as against 2 176 tons valued at 85.27 million in 1976.

Nigeria, which had exported 11 460 metric tons of tin alloy in 1968, valued at $38.4 million, exported only 3 000 metric tons, valued at $24.7 million in 1976.

This decline in exports seems to be a result of the fact that certain deposits are becoming exhausted, as in Nigeria, or difficult to exploit for geological or economic reasons and are no longer cost-efficient.

Furthermore, a number of African countries no longer wish to export the ore in its raw state but to process and use it first in their own industrial development depending on their absorptive capacity and industrial facilities.

It is probable that during investment periods exports of raw ore will slow down in a number of countries and subsequently increase in the form of semi-finished and finished tin goods.

Nigeria, which currently has a processing capacity (foundry) greater than its extraction capacity, is the only country where investment is a problem, not for processing but for extraction.

Nevertheless, it is thought that the increase in tin prices on the international market in 1979 and 1980 is a guarantee which will encourage certain countries to make new investments in the mining sector.

The following figures illustrate the precise role of the price factor:

Average annual tin prices (producers' base price)

Years	1976	1977	1978	1979	1980 a/
US dollars/metric ton	795.0	719.7	697.2	792.9	901.2

Source: Monthly Commodity Price Bulletin.

a/ Five month average (January-May 1980).

B.4. African tin imports

Like African tin ore production which has been decreasing since 1969, imports of tin (metal) have also been very low. They represented only 2.0% of world imports in value terms in 1971, 1.4% per cent in 1972 and barely 1.4 per cent in 1977 and 1.7 per cent in 1978.

The fact that tin imports are low (barely US$32.6 million in 1978) explains in part the relatively minor importance of processing and consumption of the metal in Africa, whose price is considered too high and which requires advanced technology which is difficult to acquire. The only major industries consuming the metal are located in Egypt, Nigeria, Zaire and Morocco. It is significant that Nigeria and Zaire have set up their own tin industry in order to process their own tin ore production locally.

Consequently, little tin is imported because some countries have sufficient financial resources and newly-established tin industries. As a result, Africa imports practically no tin ore or concentrate as it does not have the means to process it locally, however, it does purchase it in different forms and as an element in various manufactured goods.

Africa tin imports (SITC 687)

(Thousands of US dollars)

Country	1974	1975	1976	1977	1978	1979
World	1 238 405	967 610	1 160 421	1 559 079	1 [illegible]	2 369 [illegible]
Developed Africa	[illegible] 391	[illegible] 041	[illegible] 546	[illegible] 235	12 [illegible]	
Share of developed Africa/world (percentage)	0.7	0.6	0.5	0.5	0.3	
Developing Africa	11 475	10 650	14 716	9 621	13 [illegible]	
Share of developing Africa/world (percentage)	0.9	1.1	1.3	0.6	0.7[a/]	0.[a/]
North Africa	9 [illegible]00	7 064	12 [illegible]22	5 1[illegible]	9 625	5 [illegible]
Share of North Africa/ World (percentage)	0.8	0.7	1.1	0.3[a/]	0.5[a/]	0.3[a/]

Sources: Yearbook of International Trade Statistics, 1978.
Yearbook of International Trade Statistics, 1979.

a/ Estimates.

C. Zinc

C.1. Zinc production in Africa

Zinc production on the African continent is relatively low. Although the zinc mining potential is considered to be rather large, many countries have not yet carried out sufficient prospection. Total zinc production recorded a slight decrease during the past 10 years. Production in 1975 and especially in 1976 was considerably below average production of the previous 10 years. Total world zinc production is low and increasing at slow pace (5 030 000 metric tons in 1968 as against 5 750 000 metric tons in 1977).

The figures above show that Africa's share of world production is declining, as is apparent in the following percentages:

5.2 per cent in 1968
5.0 per cent in 1971
4.3 per cent in 1973
4.11 per cent in 1975
3.3 per cent in 1976
3.9 per cent in 1977

This decline in Africa's production is primarily a result of the fall off recorded by Zaire, Algeria and Morocco, even though Morocco made admirable efforts to increase its production in 1977 and 1978. Moreover, Zambian zinc production droped slightly from 1975 to 1978. If the Zinc mines of Tessalit in Mali and Ishiagou, Abakaliki, Alufu and Zurak in Nigeria started to be exploited, the situation could change in the medium and long term.

The volume of African production compared to world production is the following:

Zinc ore production

	1965	1966	1967	1968	1969	1970	1971
World	4350	4510	4870	4450	4850	4770	4640
Africa[a/]	293	246	241	261	269	262	272

	1972	1973	1974	1975	1976	1977	1978	1979
World	4910	4100	5390	5780	5120	5750	4730	4637
Africa[a/]	280	246	255	260	1991	223	206	220

Source: United Nations Statistical Yearbook, 1978, 1979/80

a/ It is generally thought that African production is higher as quantities extracted by some African countries, because they are small, are not recorded in international statistics.

The amount of zinc processed in Africa is naturally lower than the amount extracted as a major part of zinc ore is exported in its raw state. The only rather large zinc transformationplants in Africa are located in Zaire, Zambia and Algeria. In 1977 Zaire and Zambia produced 91 000 metric tons of manufactured zinc, whereas world production, primarly in the United States, the Union of Soviet Socialist Republics, Japan, Canada and Australia totalled 5 190 000 metric tons in the same year. It is probable, however, that manufactured zinc production will increase because of the modernaization of the Zambian plant installed at Kabwe on the Borken Hill mine by the Nchanga-Consolidated Copper Mines (NCCM) and the expansion of Algerian production through the installation of the zinc electrolysis production plant at Ghazaouet in 1974. The plant initially produced 40 000 tons and, in its second phase, after expansion in 1980, should increase its output to 80 000 tons. The plant, which receives its ore supplies from the El Abed mine (west Algeria), exports 80 per cent of its production.

C.2. African exports of zinc ore, metals and alloys

Seven African countries are exporters of zinc ore, the most important being Morocco, Zaire, Zambia, Algeria and Tunisia. The Congo and Nigeria occasionally export small quantities of zinc ore.

Total African exports of zinc ore are declining considerably because of drops in production in Zaire, Morocco, and Algeria as well as a marked tendency in producing countries, primarily Algeria and Zaire, to process the ore into different alloys locally.

For Nigeria and Algeria, whose local industrial needs are increasing, it is completely understandable that firm priority should be given to local consumption. According to some information, Nigeria may be obliged in the next few years to import zinc ore to meet the immediate needs of its industry, until exploitation starts of on the new mines which have already been located. Consequently, exports of zinc ore will practically stop for a period of five to eight years.

Morocco, which was exporting an average of 30 000 tons of zinc ore in 1966-1967 and 1968, is now exporting only 25 per cent of that amount, or 20 000 tons per year, with its production declining accordingly. Tunisian exports have fluctuated significantly, but are currently declining.

Zaire, whose exports totalled about 100 000 tons of zinc ore during 1965 and 1966, exported only 12 000 tons in 1975 and 10 000 tons in 1976, valued respectively at $US1.94 million and $1.46 million. The development of the zinc alloys export sector, for which Zaire is the leading African exporter (about 60 000 tons per year), followed by Zambia, seems to be the reason for this decline.

While Zambia exports little zinc ore, its exports of zinc alloys have increased significantly in volume and value terms. Exports totalled $US12 million per year between 1966 and 1969 and increased to $US39 million in 1974. This large increase is a result of a rise in zinc alloy prices in 1973 and 1974. In terms of volume, there is a less marked growth of exports which increased from 45 026 tons in 1968 to 60 572 tons in 1972 and fell to about 40 000 tons in 1976.

It is clear from the above that African exports of raw zinc have tended to decline over all while exports of zinc alloys have tended to increase in the medium and long term. This occurs when processing plants built or planned, in particular in Zaire, Nigeria, Algeria and Tunisia, reach processing capacities exceeding their domestic consumption needs, thus favouring, intra-African alloy trade.

C.3. African zinc imports

Africa's share in world zinc imports was only 3.5 per cent totalling more than $US1 443 million in 1979. World imports increased very rapidly between 1971 and 1979, from $444 million in 1974 to $1 260 million in 1977, and then to 1 442 million in 1979 (preliminary estimates).

Africa's share of imports remains very low viewed in a world context: 3 per cent in 1974, 5.1 per cent in 1975, 2.6 per cent in 1976, 3.2 per cent in 1977 and 3.5 per cent in 1978. Their value has been declining slightly: $493 million in 1974, $368 million in 1976, $397 million in 1977 and $439 million in 1978. The structure of African zinc imports somewhat resembles zinc imports for developing countries as a whole, constituting a bit less than one quarter of world imports: 23.3 per cent in 1974, 22.6 per cent in 1975, 20.2 per cent in 1976, 24.7 per cent in 1977 and 23 per cent in 1978.

Two types of forecasts are made with respect to African purchases: on the one hand, the increasing decline in African production, representing only 3.3 per cent and 3.9 per cent of world production in 1976 and 1977 (after having been 6.7 per cent in 1965 and 5.2 per cent in 1968), which is the result of a reduction in the amount of ore extracted in Zaire, Algeria and Morocco because of depletion of the mines, should lead to a greater need for imports. Along the same lines, more significant African imports could be expected, especially since the production of manufactured zinc in Africa, and in particular in Algeria and Zaire, should increase significantly as a result of major programmes to expand and modernize industrial units in these countries. Mali and Nigeria, potential exporters, might meet part of the import needs of other countries of the continent in the long term. On the other hand, according to the second type of forecast, since Africa contains a number of zinc mines that have not yet been exploited, the movement of imports from outside Africa might slow down, as a result of increased intra-African purchases.

However, in view of the lack of projections and of integrated industrial development plans between groups of African countries, only time will determine the accuracy of these forecasts.

African zinc imports (686)
(Thousands of $US)

	1974	1975	1976	1977	1978	1979
World	1 631 377	1 119 314	1 401 708	1 259 246	1 212 545	1 442 056
Developed Africa	4 735	1 650	460	327	50	
Share of developed Africa/ world (percentage)	0.3	0.1	0.0	0.0 a/	0.0	
Developing Africa	29 734	37 839	29 087	32 262	32 208	
Share of developing Africa/ world (percentage)	1.8	3.4	2.1	2.6	2.6	
North Africa	14 828	17 751	7[illegible] 256	7 062	11 676	
Share of North Africa/ world (percentage)	0.9	1.6	0.5	0.6	0.9	

Sources: Yearbook of International Trade Statistics, 1978.
Yearbook of International Trade Statistics, 1979.

a/ Estimates

Data on the intra-African trade in zinc ore were not given in a number of documents consulted. It is likely, however, that intra-African trade in the ore is very low because of limited African production, representing only 3.9 per cent of world production in 1977, the small number of countries involved (Zaire, Zambia, Namibia, Tunisia, Morocco) and especially the priority accorded by these countries to their national needs.

III. PROSPECTS FOR INTRA-AFRICAN TRADE IN RAW MATERIALS FOR BASIC INDUSTRIES

The current level of intra-African trade in raw materials, and in particular in non-ferrous metals, is an indication of current market conditions both internationally and in Africa. These conditions, however, change rapidly.

The stagflation characterizing today's world economy and the resulting unsteadiness of the situation of commodities are not likely to encourage production in this area. Consequently, market control is almost entirely out of the hands of producers.

Furthermore, industrialization has developed rapidly throughout Africa. Based initially on locally available resources and aimed primarily at meeting national needs, industrialization is expected to be diversified and, as a result to rely increasingly on imports of necessary raw materials. Under these conditions it seems that intra-African trade of these commodities will develop on the basis of the potential of both African production in the area and the burgeoning industrial consumption of the region, stimulated by real demand. For example growth prospects in the African aluminium market exist in an increasing number of African countries with plants capable of producing hundreds of semi-finished goods annually for the manufacture of household appliances and construction materials. Several countries actually tend to produce major consumer goods based on aluminium themselves (domestic utensils, hardware for construction, etc.) despite two significant obstacles: the high price of the metal and competition from a relatively new wood industry in some countries of the continent.

Actually the impact of these two obstacles is for the time being offset by the numerous uses of the metal in various spheres of practical life, especially in building, owing to its lightness, high mechnical resistance, good electrical and thermal conductability and corrosion resistance.

A. Production potential

There is no question that Africa possesses considerable reserves of raw materials, which have not yet been discovered nor exploited. It is highly probable that only a small portion of the reserves are now being exploited, while new resources are being discovered throughout the continent. For example while the tin mines of Nigeria are being depleted, other mines for various raw materials, including tin, are being discovered in a number of African countries.

Consequently vast reserves have been identified and evaluated, in the case of tin, for example, in the Eastern Desert of Egypt.

Bauxite deposits have been located in several countries, among them the United Republic of Cameroon, Madagascar, Mali, Malawi, Egypt, Guinea-Bissau, the Upper Volta, Chad, Zaire and Ghana. These deposits have not yet been worked, since the countries concerned have confronted technical and financial difficulties or are still studying their cost-efficiency.

With respect to zinc, exploitation in the near future of the mines in Mali (Tessalit) and Nigeria (Ishiagou, Abakaliki, Alufu and Zurak) will increase production considerably, especially since African zinc production is now very low.

Brief studies on some raw materials have led to the following observations:

African production in raw materials has increased in general and is rising rapidly. In most cases, it has doubled in the past 10 years. Moreover technical and/or technological improvements have resulted in a significant increase in productivity;

The quality of products sold has met international standards in an encouraging number of cases.

B. Consumption of potential

Two factors should be mentioned here:

- Industrialization is taking place throughout Africa at a rapid pace, especially in three basic sectors: metals, agro-industry, and chemicals;

- The African population and standard of living, as they increase, require more and diversified industrial products.

Runaway inflation, which affects the price of imported goods to be used either for direct consumption or as intermediate goods in the production of industrial goods, is likely to stimulate industrialization in Africa and intra-African trade of these goods.

With respect to the raw materials covered in this study, the situation seems to be the following:

The consumption of zinc as a raw material is expected to increase in the medium and long terms, since plants manufacturing zinc alloys have come into production in Algeria, Tunisia, Nigeria and Zaire. These plants are planned with capacities exceeding the domestic demand of the countries concerned and should therefore produce exportable surpluses.

Zinc consumption on the contrary is at a stage of stagnation and installed industrial capacity is generally limited.

Over-all consumption of tin in Africa is not likely to increase, especially since the extraction of tin ore is declining.

African bauxite production, which increased fivefold between 1964 and 1978 (the processing of bauxite into aluminium) will most likely increase quite rapidly in the next few years, especially in the light of processing capacity which is being expanded in Ghana, Guinea, Egypt and the United Republic of Cameroon.

As a whole, prospects for intra-African trade in the raw materials dealt with in this study seem to be rather promising. It is clear, however, that this development will not take place by itself. There are in fact, numerous obstacles and hence an urgent need to take appropriate measures to overcome them.

IV. CONCLUSIONS

This brief overview of the production and trade of some raw materials for basic industries indicates that:

- In many cases African production is declining and constitutes a small portion of world production, taking into account Africa's proved or estimated reserves, which have not yet been worked;

- Trade in these commodities has generally increased although this has not worked to the advantage of intra-African trade;

- Difficulties in production, pricing and trading of these raw materials vary in type and in importance from country to country.

A. Production

There has been a clearcut increase in bauxite production, which has not been accompanied by an increase in the production of aluminium and alumina, each representing barely per cent of world production. This situation is the result of a certain stability in bauxite exports to destinations outside Africa and to the limited efforts made to transform bauxite into alumina locally.

Tin production has declined considerably, in part because of the depletion of certain deposits, and has been accompanied by a similar decline in tin metal production (manufactured).

There has been stagnation in zinc production in spite of a verified major potential in Africa.

B. Exports

African exports of raw materials (non-ferrous metals) for basic industries have skyrocketed, in spite of difficulties and unforeseen circumstances on the international market, where transnationals play a major role and the London Exchange remains the focal point.

For most raw materials a considerable part of production is generally exported, which shows that the transformation industry for these non-ferrous metals in Africa is weak and often inexistent.

Although the price level of aluminium doubled and that of tin increased by about 82 per cent between 1976 and 1980, while the price of zinc fell by 13 per cent during the same period, commodities often seem to be exported without any regard to world prices, considering the almost total monopoly of transnationals, which relfects the absence of any kind of stabilization system at the national and regional levels. As a result, in many cases export revenues of the countries concerned have been seriously affected.

Exporting companies have experienced losses at two levels:

- At the national level, when transnationals hold exploitation licenses and export commodities themselves, they make use of reference prices and/or transfer prices, which give them a large operating margin with respect to world market prices;

- At the international market level, when the producing countries export commodities themselves but call upon intermediaries, which are most often subsidiaries of transnational companies, to represent them on the competitive market and ensure outlets for their raw materials.

C. Imports

African imports of these raw materials are low and even insignificant, primarily as a result of sources outside Africa for the following reasons:

- African trade remains directed toward tranditional partners outside the continent;

- The information and communication network also remains focused on the traditional market and seems to require a long period of time to adjust to its new interests in intra-African trade;

- The fact that industrial investments have been small and long in coming has led to a situation characterized by few or no industrial plants, which prevents local processing of these raw materials.

Under the circumstances intra-African trade in these raw materials has not developed. The small amount of trade taking place has been sporadic in nature and a significant part of it has been handled by transnationals operating in Africa. African sources are often given a secondary role. It seems rather clear that some African countries continue to practice three-way trade by obtaining African products from sources outside Africa.

V. OBSTACLES TO THE DEVELOPMENT OF INTRA-AFRICAN TRADE IN RAW MATERIALS FOR BASIC INDUSTRIES

Intra-African trade, in general, now represents less than 5 per cent of Africa's total trade, while the corresponding percentage for raw materials is quite simply insignificant (less than 1 per cent). If this trade has not developed further, it is because it has encountered and continues to encounter many major obstacles. The colonial economic policy, which affected almost all African countries, created and supported an economic structure which runs counter to the development of trade, by fostering in particular sales of raw materials between the colonies and the Metropolitan countries. But aside from the colonial heritage, whose effects are always felt, subsequent development of international trade especially through transnational corporations has created new obstacles and constraints. With the conference of these two types of obstacles, which are found at all levels of economic and trade policy today African economies have remained dominated and dependent,

A. Obstacles at the production level

Because African products are similar, possibilities for trade tend to be limited.

Processed goods manufactured from the region's raw materials are not very significant.

The low level of industrialization prevents local processing and therefore the development of raw materials, on the one hand, and sales of these goods to other African countries, which are in the same situation, on the other.

One example of the difficulties confronted by African countries in this respect is the fact that five tons of bauxite and 14,000 kw/h are required to produce one ton of aluminium, the marketing of which is often in the hands of a transnational.

Financial resources are insufficient given the size of investments required for both the exploitation and processing of these raw materials. Governments are therefore obliged either to postpone their exploitation projects, which deprives them of the benefits which would accrue from the exploitation of their resources, or to turn to transnational corporations, often giving them considerable benefits with respect to revenues (taxes), markets and even management and disposal of products.

The use of installed capacity at very low rates limites both the economic and commercial competitiveness of African industrial enterprises.

The fact that the industrial sector in Africa is relatively new means that most countries are still serving an apprenticeship, one of the results being that they are not yet in a position to take full advantage of specialization and economies of scale.

B. Obstacles at the marketing level

Trade in raw materials in this respect confronts two types of obstacles of unequal importance.

B1. Tariff obstacles

In general, tariff obstacles rarely affect trade in unprocessed and/or raw materials transported in bulk. Nevertheless, in some cases, in order to protect national resources and industries, some countries apply protective fiscal measures aimed at taxing, and therefore at slowing down, the entry of certain raw materials.

Graduated customs duties are applied, however, according to the level of processing of raw materials (aluminium, alumina, zinc and tin alloys, etc.) and their final use in industry, agriculture, construction, etc.

The following examples give an idea of such duties and taxes:

In Zaire, imports of raw aluminium are subject to duties and taxes of equivalent effect totalling about 15 per cent; aluminium bars and sections; 20 per cent; building materials made from aluminium, 30 per cent; raw copper is subject to charges of 15 per cent, copper bars and sections, 20 per cent; copper nuts and bolts, 30 per cent; raw zinc, 25 per cent, zinc rods, tubes and pipes 15 per cent; raw tin, 25 per cent; zinc articles, 15 to 20 per cent.

In Morocco, raw copper is subject to charges of 10 per cent, copper rods and sections, 25 per cent; copper tubes and pipes, 30 per cent; brass pipes for radiators, 60 per cent; copper rivets, 270 per cent; raw aluminium, 15 per cent; aluminium rods, wire and sections, 40 per cent; sheet aluminium and narrow aluminium strips, 17.5 per cent; raw zinc, 25 per cent; zinc tubes and pipes, 45 per cent; zinc materials for building, 55 per cent; raw tin, 15 per cent; other tin products, 35 to 55 per cent.

Tunisia applies import taxes of 6 per cent on raw copper and 9 to 42 per cent on copper-based products; 6 per cent on aluminium and 9 to 10 per cent on aluminium products; 9 per cent on raw zinc; 6 per cent on raw tin and 9 to 13 per cent on various tin-based products.

The United Republic of Tanzania levies a 10 per cent customs duty on practically all ores.

Uganda collects duties and taxes of 20 per cent on raw zinc and zinc alloys.

Angola's rates on industrial products are much lower: copper wire, rods and sections, 3 per cent; iron tubes, 40 per cent.

Kenya's tariff varies from 10 to 30 per cent, plus duties and royalties of 15 to 20 per cent for all minerals or mineral-based industrial products.

	Tariffs (Percentage)	Duties and royalty taxes (Percentage)
Zinc concentrates, raw zinc	20	20
Copper rods and sections	30	15
Copper wire	20	15
Aluminium sheets, plates and coils	20	20
Zinc and zinc alloys	10 to 20	20
Raw tin and unworked tin alloys	20	Nil

Finally Madagascar levies duties and taxes ranging from 17 to 28 per cent on imports of all raw or processed ores: zinc powder and dust, 17 per cent; tin, 17 per cent; copper wires, 17 per cent; cast iron and stell, 17 per cent.

In addition to these tariffs, preferential duties between African countries are limited in number and cover only selected products; however, some preferential arrangements exist especially between countries and groups of African countries, on the one hand, and between EEC and the Commonwealth, on the other hand, which

does raise a number of difficulties from the viewpoint of the free movement of raw materials between countries of the continent.

B2. Non-tariff obstacles

Non-tariff obstacles, although less obvious than those mentioned above, are by no means less effective.

Different regulations and government measures, which are applied in the context of intra-African trade relations, complicate and slow down trade at different levels and to varying degrees.

Other constraints are the result of various causes, including the following:

Competition of some African raw materials (wood as compared to aluminium and zinc) and development of substitute products by developed countries;

These developed countries make up a very powerful purchasing group and form a monopoly by imposing their terms on the so-called international market. This is especially true for subsoil products, such as bauxite, tin, zinc etc.;

Fixed supply of raw materials because of the inadequacy or lack of processing industries, especially in the case of tin;

Partitioning of national markets, especially in African countries:

Lack of organizations to promote trade or well-established distribution networks, especially at the subregional and/or regional levels;

Lack of subregional monetary and financial organizations;

Lack of intra-African commodity exchanges able to facilitate and focus trade on the needs of the African continent.

B3. Other obstacles

Defects in or absence of communications infrastructure between African countries. Existing networks are primarily oriented towards developed countries on a North-South axis. To this problem is added the lack of synchronization in the planning, programming and construction of infrastructure components in different countries.

The currency needs of some African countries, which have become particularly acute since the spread of current worldwide inflation, oblige them to sell their raw materials for hard currencies.

Narrow-minded nationalism and/or poorly camouflaged pride lead some countries to refuse to co-operate.

Pressures are brought to bear by foreign Governments outside the region and by transnational corporations determined to guarantee themselves permanent supplies. The pressures exerted by transnationals are generally all the more effective when the countries concerned, for want of efficient national mechanisms, depend largely on these comapnies for the financing, production and marketing of raw materials.

VI. MEASURES TO PROMOTE INTRA-AFRICAN TRADE

Despite the diversity of raw materials and countries, most of the obstacles to intra-African trade are true for almost all countries and all raw materials. They have an impact on most if not all the sectors concerned from production to final marketing, including intermediate sectors such as currency and transport.

There is therefore a great temptation to apply a sectoral strategy in the search for a solution to the problems posed. The disappointing after effects and limitations of solutions of this kind, which have been tried in most African countries, are well known.

It thus appears necessary to outline an approach to a global strategy, which would be an attempt to define a framework capable of not only accommodating sectoral solutions but also producing maximum efficiency.

The proposed measures are of two kinds: national (domestic) and international (or regional).

A. National measures

National measures can be designed and articulated around two main ideas:

1. Control by countries of their own natural resources, and
2. Increase of the value of these resources through industrialization.

These two concepts are sufficiently understood and accepted, as regards both their content and their objectives, so that there is no need to emphasize them. However, it is appropriate to note that the application of these principles cannot take place without posing serious problems to the countries concerned. Application will have to take certain factors into account: physical or financial resources, size of markets etc.. These factors may exceed the means of any one country and, at that point, international co-operation becomes necessary.

B. International or regional measures

The exploitation of natural resources causes considerable problems for developing countries in particular in terms of financial, human and technological resources. Even when these difficulties have been overcome, industrialization requires in turn a market and adequate infrastructure. The extent and level of purchasing power of African countries are such that few countries are able to solve these problems by themselves. Co-operation becomes necessary, not only as a political necessity but even more as a technological requirement.

Co-operation is possible in most fields. However, it is the following fields which appears particularly important with regard to intra-African trade and warrant the following proposals:

B1. Production

Setting up of the necessary national, multinational and regional capabilities and resources to enable Governments to establish true sovereignty over their natural resources;

Setting up of organizations or institutions capable of meeting the problems of mass production;

Joint exploitation of resources and participation in joint mining research projects with a view to replacing depleted mines in some countries (the tin mines in Nigeria for example).

There is no doubt that bauxite and aluminium trade between African countries would be in a better situation if a number of conditions could be made to coincide. The main sales areas for bauxite are Guinea, Ghana and Sierra Leone, so that it may be considered that these countries already have an industrial infrastructure and could be reliable trading partners of neighbouring African bauxite, alumina and aluminium producing countries. All that is required is to identify formulae for economic co-operation at the sub-regional level provide some countries with outlets and others with reliable sources of supplies.

The competitiveness of raw or semi-processed raw materials can be increased through improved use of existing capacities and better management.

B2. Marketing

Setting up of subregional and regional institutions, notably a commodities exchange, capable of promoting a vast subregional or regional market.

Strengthening of national institutions for the marketing of mining products and establishment of new ones, capable of orienting intra-African trade in raw materials to international co-operation. Encouragement of interagency contacts as well as professional associations and groups at the national, subregional and regional levels.

Establishment and application of legal and administrative instruments (mixed companies, framework agreements, barter agreements etc.) to facilitate the flow of raw materials within the continent, closely linked with co-operation in the production and financing of industrial processing plants for raw materials (non-ferrous metal industrial projects).

Deliberate diversification of economic and trading partners (by negotiating new types of economic and commercial co-operation) in order to promote separation from the transnationals and their restrictive practices, so that African countries are no longer restricted to being mere suppliers of raw materials to transnationals and adopt co-operative arrangements on a subregional and regional basis with a view to avoiding the risks of the international non-ferrous metals market.

Dissemination of trade information with respect to raw materials as a means of promoting regional trade.

B3. Currency and finance

Setting up of multinational African banks, specialized in industrial and mining development, capable of promoting industrialization based on the consumption of raw materials on the continent. Among their tasks, these institutions will be responsible for the mobilization of funds to invest in mineral resource development projects on the continet.

Expansion of the resources of clearing and payments houses, enabling them to play a more dynamic role in the growth of intra-African trade in raw materials for basic industries, which requires specific conditions and substantial means.

Setting up of an insurance system to cover, among other things, the financing of raw material exports to African countries.

The insurance system, which could cover all commercial transactions between the States of the continent, should give increased support to transactions which facilitate economic integration through the provision and processing of raw materials in the content of multinational projects.

B4. Transport and communications

Development of a common policy for transport and communications, with a view to improving and developing feeder roads to promote trade between countries of the continent. The common policy should work towards a new approach and restructuring of communications networks in order to make them more efficient in the context of intra-African trade relations.

Maximum use of facilities provided for by the Code of Conduct for Liner Conferences adopted by the United Nations Conference on Trade and Development, since the transport of raw materials calls for specific conditions.

Special attention should be given to the relationship between the programmes and projects of the United Nations Transport and Communications Decade in Africa and the transport of mineral and other raw materials considering that transport costs can facilitate or hamper intra-African trade.

Special attention should be given to the need for access to means of transport for the export of minerals from land-locked countries to other regions and to the possibility of establishing joint transport systems.

Large service areas should be set up in ports, near major highways and railways, in conjunction with the siting of industrial processing units, to reduce transport costs and facilitate transport and the dispatching of raw materials throughout the continent.

Table 1: Regions with bauxite reserves in Africa

Countries	Regions with bauxite deposits	Obstacles to the exploitation of reserves
United Republic of Cameroon	1. Dschang-Bafoussam deposit and Sabol-Malleo plateau (40 tons of reserves) Content: 41-42 per cent Al_2O_3 and 2-3 per cent SiO_2	Excessively thin beds and scattered deposits
	2. Minim-Martap deposits (1 billion tons of reserves) Content: 43 per cent Al_2O_3 and 2 percent SiO_2	Distance from the coast: 900 km by the trans-Cameroonian railway which connects Ngaoundéré to Douala port; transport problems
Madagascar	Manatenina deposit (70 million tons of reserves)	Transport problems
Mali	Bamako and Kita deposits (300 to 900 million tons of reserves)	Location of Mali: transport problems
Malawi	Mont Mianje deposits	Not yet exploited
Egypt	Qena deposit	Delay in the start of operations of the Nag Hamadi aluminium plant to exploit these reserves

Table 1: Regions with bauxite reserves in Africa (cont'd)

Countries	Regions with bauxite deposits	Obstacles to the exploitation of reserves
Guinea-Bissau	Boe bauxite in the south-eastern part of the country	A Netherlands company has received a licence to extract this bauxite
Upper Volta	White bauxite at Kenya-Kongoussi, in the central and western parts of the country	SOGEREM, subsidary of Pechinery, is conducting initial studies
Chad	Bauxite reserves at Koro estimated at 5 million tons	Development study delayed
Zaire	65 million tons of bauxite with an average alumina content of 35 per cent and a very high silicium content in the Tshela region of lower Zaire	Potential resources are being considered for subsequent exploitation
Ghana	Kibi, Nyinahin and Awaso deposits estimated at 530 million tons	Several projects on research and the increase of bauxite processing capacities are under way

Table 2: Major bauxite reserves in Africa
(1000^3 of long tons)

Countries	Bauxite reserves	Recoverable aluminium equivalent		
		Reserves	Other bauxite resources	Total resources
World	25 097	5 109	2 220	7 349
Africa	10 161			
Ghana	579	118	200	381
Guinea	8 332	1 724	...	1 724
Sierra Leone	132	27	...	27
United Republic of Cameroon	1 016	181	200	381
Others	102	18	272	290

Source: ECA working paper No. 4, The impact of transnational corporations in the aluminium industry in Ghana.

Table 3: Africa's share of world bauxite production from 1950 to 1979

(Thousands of tons)

Years	World production	African production a/	Share of African production in world production $\frac{70=100}{74}$
1950	8 418.1	135.0	1.6
1952	12 769.1	187.9	1.4
1954	16 253.0	502.0	2.6
1956	18 323.2	595.4	3.1
1958	21 384.2	545.1	2.5
1959	23 015.4	456.5	1.9
1960	27 330.4	1 610.9	5.9
1961	29 226.4	1 972.1	6.7
1962	31 089.3	1 747.6	5.6
1963	30 973.7	1 990.0	6.4
1965	39 350	2 392	6.1
1969	52 300	3 165	6.05
1970	57 630	3 334	5.8
1971	62 500	3 542	5.8
1972	66 200	3 693	5.7
1973	68 650	4 710	6.9
1974	78 200	8 643	11.05
1975	82 000 b/	8 660	10.95
1976 x	73 800	11 237	15.24
1977 x	79 500	11 827	14.85
1978 xx	83 122	11 995	14.43

Sources: XUnited Nations Statistical Yearbook, 1978.
XXMineral Trade Notes, Vol. 78, No. 6, June 1979.
United Nations Economic Accounts, 1976.

a/ Not including Sierra Leone production until 1963.
b/ Estimate.

Table 4: Bauxite production in Africa

(Thousands of metric tons)

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977*	1978**	1979
World	46 600	52 000	57 630	62 200	66 200	68 650	78 200	82 000	73 800	79 600	83 132	-
Africa	2 830	3 165	3 284	3 542	3 692	4 710	5 643	5 660	11 222	11 227	11 295	13 500
Guinea	2 118	2 459	2 490	2 650	2 650	3 650	4 605.3	4 620	10 292	10 241	11 000	11 500
Sierra Leone	422	454	443	552	593.9	692	622	572	562	707	716	720
Ghana	295	246	342	339	340.4	340.2	357	360	367	241	375	380
Mozambique	3	4	7	7.7	5.4	5.6	6.0	6.0	5	5	3	3
Zimbabwe	3	2	3	3.0	3.0	3.0	3.0	3	3	3	3	3

Sources: *United Nations Statistical Year book, 1979.
**Mineral Trade Notes, vol. 78, No. 6, June 1979

Table 5: African aluminium production

(Thousands of metric tons)

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978**	1979***
World	7 970	8 930	9 570	10 260	10 930	12 030	12 090	12 040	12 350	13 500	14 052	14 974.7
Africa	156.0	159.2	165.4	190.8	232.0	249.3	270.8	274.0	339	377.0	368	352.4
Ghana	110.6	112.1	113.1	111.1	132.8	152.2	157.0	142.2	146.6	153.0	161	160.7
Egypt	-	-	-	-	-	-	-	2	50	90	100	101.2
United Republic of Cameroon	45.4	46.7	52.4	50.7	46.2	41.1	46.8	51.0	54.2	65.0	30	41.5
Others	-	-	-	28.0	53.0	52.0	75.0	75.0	78.1	78.0	78	-

Sources: United Nations Statistical Yearbook, 1978.
** ECA Statistics Division, June 1980.
*** World Metal Statistics, January 1981.

Table 6: African bauxite production (from raw bauxite)

(Thousands of metric tons)

	1960	1961	1969	1970	1971	1972	1975	1976	1977	1978	1979*
Africa	192	430.8	577	610	661	665	643	560	562	622	622
Guinea	192	430.8	577	610	661	665	643	560	562	622	662
World	9 152	11 416	19 646	20 921	22 560	23 575		27 053	29 705	29 876	26 016

Sources: Mineral Trade Notes, vol. 76, No. 6, June 1979.
*World Metal Statistics, Janaury 1981.

Table 7: African bauxite exports (283.3)

(Metric tons)

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977*	1978
Ghana	240 988	245 365	214 459	253 705	315 [illegible]	[illegible]	377	320 542	300 000	162 119	-
Sierra Leone	470 400	442 000	296 000	560 914	982	370 662	298	729 074	510 000	500 000	-

Sources: *Yearbook of International Trade Statistics, 1979.
ECA Statistics Division

African bauxite exports (283.3)

(Thousands of US)

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977*	1978
Ghana	1 462	1 365	1 251	2 245	2 030	2 210	3 012	3 767	3 600	2 198	-
Sierra Leone	1 772	1 669	1 256	3 020	4 190	4 316	4 240	4 042	3 200	-	-

Sources: *Yearbook of International Trade Statistics, 1979.
ECA Statistics Division.

Table 3: African aluminium exports (684.1)
(Metric tons)

Countries	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Ghana	76 700	126 084	99 962	88 777	131 974	125 157	84 112	65 787	70 000	140 100	111 200	152 600
United Republic of Cameroon	135 570	40 726	39 061	28 761	29 826	27 979	21 250	25 034	20 844	23 900	11 600	20 500

Sources: *World Metal Statistics, January 1981.
ECA Statistics Division.

African aluminium exports (684.1)
(Thousands of US dollars)

Countries	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Ghana	25 191	43 031	21 268	20 134	43 199	39 784	29 001	28 675	33 250	86 511	-	-
United Republic of Cameroon	19 095	21 555	19 600	14 775	16 324	17 561	13 606	18 100	16 402	20 084	17 215	55 915

Sources: *Yearbook of International Trade Statistics.
ECA Statistics Division.

Table 9: African aluminium imports (634)

Importing Countries	1968		1969		1970		1971		1972	
	Metric tons	Thousands of US Dollars	Metric tons	Thousands of US Dollars	Metric tons	Thousands of US Dollars	Metric tons	Thousands of US Dollars	Metric tons	Thousands of US Dollars
Algeria	2643	2389		3162	4820	4955				
Angola			1104	1052	1149	1342	1106	1776	1350	1625
Chad	6	22	156	160	142	135	151	161	171	182
Ethiopia		650	640	519	540	567	358	355	562	559
Ghana	2102	1592	2197	1763	3062	2929	3743	3171	2182	1964
Ivory Coast	2477	1894	2944	1993	4084	2930	5847	3609		
Kenya	1000	1036		1180	1557	1946	1100	1638	981	1427
Liberia									318	342
Madagascar	1093	768	795	693	538	472	1285	1010	929	743
Malawi	230	183	473	323	148	152	433	374	370	613
Mauritius		174	205	222	203	225	249	272	466	543
Morocco	2390	2195	3252	3051	3468	3301	2932	3007	3332	3339
Mozambique	584	835		737		1021				
Nigeria	3000	2128	4691	3315	3382	5667	10120	6946		
Rwanda	68	82	112	133	95	136			77	90
Sudan	952	802	969	813	830	838	1401	1204	522	763
Uganda	742	569	1600	1344	1068	1096	1151	1411	920	766
United Republic of Cameroon	1581	1169	227	205	2164	977	497	479		
United Republic of Tanzania		1368	3056	1974	2829	1940	4377	2978	4529	3048
Upper Volta	203	128	171	133	174	140	180	128	245	156

Source: Yearbook of International Trade Statistics, 1970-1971, 1972-1973, 1977, vol. 1, 1978, vol. 1.

Table 9: African aluminium imports (684) continued

Importing Countries	1973		1974		1975		1976		1977		1978		1979	
	MT	Thous. of US Dol.	MT	Thous. of US Dol.	MT	Thous. of US Dol.	MT	Thous. of US Dol.	MT	Thous. of US Dol.	MT	Thous. of US Dol.	MT	Thous. of US Dol.
Algeria	2786	6783	3277	11325	15405	28533	7693	15900	10113	19032	11453	22772		
Angola	1576	2237	1973	3145	-	-	-	-	-	-	-	-		
Chad	213	257	96	115	118	180	-	-	-	-	-	-		
Ethiopia	886	995	653	1018	448	860	169	225	-	-	-	-		
Ghana	4334	4739	4867	6265	3693	3931	2704	4137	9333	12587	-	-		
Ivory Coast			7723	6901	7292	9259	9732	15553	7648	14786	8387	21156		
Kenya			1564	6901		2668	1104	2629	3523	6201	3987	7911		
Liberia	513	398	520	627		1264	441	1296	1106	2496	-	-		
Libyan Arab Jamahiriya	6455	5674	7404	10923	9024	11409	5481	9511	4873	7759	4400	13091		
Madagascar	1277	1379	813	1168	876	1587	898	1328	385	1919	1552	3224		
Malawi	795	800	378	944	373	507	363	480	235	717	227	781		
Mauritius	400	519	603	1062	417	925	467	966	-	-	-	-		
Morocco	3828	4199	5740	9811	5945	10997	6543	11137	7224	15275	4440	11228		
Mozambique	398	1333	903	1755	-	-	-	-	-	-	-	-		
Nigeria	8703	7431	16301	12839	19613	33147	17329	33351	87270	45354	-	-		
Rwanda	37	50	3	9	45	79	238	421	-	-	-	-		
Sudan	1484	1700	1188	2055	1371	2379	-	-	-	-	-	-		
Uganda	574	681	743	1089		675	96	212	-	-	-	-		
United Republic of Cameroon	464	553	306	738	616	1435	1135	1810	26874	28084	-	2831	1909	4645
United Republic of Tanzania	3115	2406	4669	5185	2051	2556	3892	4292	-	-	-	-		
Upper Volta	581	671	448	376	433	527	-	-	-	-	-	-		

Sources: Yearbook of International Trade Statistics, 1977 and 1978, vol. 1.

x Yearbook of International Trade Statistics, 1979, vol. 1.

Table 10. Production of tin concentrate in Africa

(Thousands of metric tons)

Countries	1965	1966	1967	1968	1969	1970	1971
World a/	155 100	167 100	17[illegible] 200	193 100	178 000	185 700	187 100
Africa comprising	20 338	22 023	21 338	24 462	20 727	19 789	19 124
Burundi	100	100	100	100	100	100	100
Congo	49	50	50	50	50	-	-
Morocco	12	12	12	12	12	26	13
Namibia	421	498	700	800	1 024	1 044	965
Niger	61	55	3[illegible]	75	35	67	90
Nigeria	9 700	9 687	9 420	9 304	8 741	7 959	7 326
Rwanda	1 443	1 303	1 343	1 320	1 320	1 320	1 320
Swaziland	12	12	12	12	12	12	12
Uganda	120	199	106	172	166	122	177
United Republic of Cameroon	41	46	35	35	35	36	36
United Republic of Tanzania	259	389	359	328	238	35	54
Zaire	6 311	7 152	6 503	6 264	6 647	6 458	6 456
Zambia	16	24	24	24	24	24	24
Zimbabwe	520	600	600	600	600	600	600

Countries	1972	1973	1974	1975	1976	1977	1978	1979
World	195 900	188 800	184 100	181 200	179 800	185 100	237 100	246 900
Africa comprising	18 039	16 852	15 868	14 875	3 191	13 158	12 626	6 200
Burundi	100	100	100	100	100	100	150	-
Congo	-	-	-	-	-	-	-	-
Morocco	12	15	4	-	-	-	-	-
Namibia	915	731	700	700	700	700	1 000	1 000
Niger	91	93	84	84	84	96	96	96
Nigeria	6 731	5 828	5 455	4 652	3 716	3 267	2 935	2 900
Rwanda	1 440	1 380	1 300	1 250	1 400	1 700	1 400	1 400
Swaziland	12	12	12	1	4	4	4	4
Uganda	72	44	199	88	120	120	120	
United Republic of Cameroon	36	36	36	25	25	25	25	25
United Republic of Tanzania	40	12	86	2	3	5	-	-
Zaire	5 960	5 442	4 720	4 074	3 723	3 560	3 450	900
Zambia	24	24	24	10	10	10	10	-
Zimbabwe	600	600	600	600	600	600	600	600

Sources: United Nations Statistical Year book, 1978, 1979/80 a/ Not including the Eastern European Socialist countries (except for 1978 and 1979).
World Metal Statistics, January 1981.

Table 11. Manufactured production of tin in Africa

(Thousands of metric tons)

Countries	1965	1966	1967	1968	1969	1970	1971
World [a/]	150 600	157 200	177 200	187 800	183 300	183 600	185 900
Africa [b/]	12 379	13 928	12 617	13 835	13 039	11 598	10 750
Morocco	15	12	12	12	12	12	12
Nigeria	9 482	10 092	9 078	10 001	8 931	8 089	7 348
Namibia	-	-	-	-	-	-	-
Zimbabwe	502	490	600	600	600	600	600
Zaire	1 830	2,034	1 427	1 922	1 881	1 396	1 350
Rwanda	-	-	-	-	-	-	-
Burundi	-	-	-	-	-	-	-

Countries	1972	1973	1974	1975	1976	1977	1978	1979
World [a/]	190 700	187 300	197 800	176 900	181 800	179 000	234 000	239 000
Africa [b/]	10 316	9 364	8 813	7 525	6 145	6 095	12 400	12 300
Morocco	12	12	12	-	-	-	-	-
Nigeria	6 744	5 993	5 574	4 677	3 667	3 315	2 700	2 700
Namibia	-	-	-	-	800	100	800	100
Zimbabwe	600	600	600	600	600	600	600	600
Zaire	1 400	969	685	648	778	679	900	900
Burundi					1 500	1 500	1 500	1 500

Source: International Tin Board cited in United Nations statistics, 1978, 1979/80 Statistical Yearbook UN

Note: Except when indicated, these data refer to the production of new (virgin) metal and do not cover tin produced from old metal or detinning.

a/ Not including China, the German Democratic Republic, Viet Nam, and the Union of Soviet Socialist Republics.
b/ Major tin processing countries.

Table 12. Industrial tin consumption in Africa

(In metric tons)

Countries	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
World	180 300	187 200	185 600	189 400	192 000	214 200	220 200	173 900	194 400	184 700	186 000
Africa, comprising	2 705	2 853	2 982	2 878	3 130	3 284	3 449	3 56	3 439	3 269	3 346
Egypt[a/]	300	300	300	300	300	300	400	600	600	600	400
Morocco[a/]	260	260	240	240	240	240	240	240	240	240	240
Nigeria	100	80	80	80	80	80	80	80	80	80	80
Zaire	160	100	100	108	108	120	120	120	120	120	120
Zimbabwe[a/]	200	200	200	200	200	200	200	200	200	200	600
Others	1 685	1 913	2 062	1 950	2 202	2 284	2 329	2 322	2 319	2 049	1 906

Source: United Nations Statistical Yearbook, 1978 and 1979/80

a/ United Nations estimates.

Table 13. African tin ore exports (283.6)

(Thousands of metric tons)

Countries	1968	1969	1970	1971	1972	1973	1974	1975	1976
Zaire	5064	7294	6591	6209	6154	6306	5411	5499	5000
Rwanda	1873	2214	2156	2153	2322	2018	1883	2152	2176
Uganda	296	236	185	175	104	66	242	85	20
United Republic of Tanzania	391	179	241	141	77	52	68	40	22
Niger	81	45	63	181	45	45	-	-	-
United Republic of Cameroon	51	41	42	-	-	-	-	31	-
Nigeria	1169	4	-	-	-	-	-	250	-

(Thousands of U.S$)

Countries	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Zaire	11 412	16 493	15 110	14 714	14 746	13 458	25 972	18 868	16 625		
Rwanda	3 587	4 386	4 711	4 550	5 320	4 734	4 380	5 392	5 275		
Uganda	495	386	308	294	174	134	645	271	73		
United Republic of Tanzania	654	303	413	238	130	171	173	102	24		
Niger	103	61	45	67	49	59	-	-	-		
United Republic of Cameroon	100	77	76	-	-	-	-	139	-		
Nigeria	274	-	-	-	-	-	-	88	-		

Source: ECA Statistics Division, June 1980.

Table 14. African exports of tin metal and alloys (687.1)

(In metric tons)

Countries	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Nigeria	11 460	9 449	10 668	8 434	6 849	5 251	5 761	4 729	3 000	1 896	-	-
Zaire	1 045	1 874	1 222	1 300	1 239	848	536	782	600*			

(Thousands of US dollars)

Countries	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Nigeria	35 399	33 952	46 504	34 737	29 074	228 555	42 006	33 135	24 728	20 824	34 805	-
Zaire	3 393	6 194	3 954	4 896	4 060	3 644	3 552	3 384	2 160	25 887	14 970	-

Source: ECA Statistics Division

* Yearbook of International Trade Statistics, 1979 and 1979.

Table 15. Zinc ore production (in content) [a/] in Africa

(Thousands of metric tons)

Countries	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978*	1979*
World[b/]	5 030	5 330	5 530	5 330	5 500	5 670	5 600	5 470	5 570	5 750	4 730	4636,3
Africa	261	269	265	267	260	245	244	225	180	223	206	219,6
Algeira[c/]	15,4	16,1	18,1	16,5	17,0	14,4	10,4	13,0	6,2	3,1	7,5	4,9
Congo	1,2	0,7	0,1	0,8	0,9	0,7	3,3	4,0	5,1	4,7	4,8	-
Morocco[c/]	30,4	32,4	15,8	12,5	18,3	17,6	13,8	16,9	15,4	42,7	18,0	7,5
Namibia*	23,2	38,2	46,9	48,9	41,9	33,9	39,4	37,7	26,9	38,3	45,0	29,0
Tunisia[c/]	3.9	9,2	11,8	11,4	11,3	9,1	6,2	6,0	7,3	7,1	13,0	10,5
Zaire	119,3	95,5	104,3	108,3	90,5	87,6	89,7	72,2	70,3	81,8	73,7	73,0
Zambia	67,1	76,4	68,0	68,0	71,0	79,2	80,7	67,3	48,8	45,0	39,1	38,2

Sources: United Nations Statistical Yearbook, 1979.
Industries et travaux d'outre-mer, No. 318, May 1980.
*World Metal Statistics, January 1981.

a/ In zinc ore and concentrate content and all other zinc-bearing ores and concentrates from which zinc is to be extracted. In some cases the data are approximate.

b/ Not including the production of Czechoslovakia, Romania, and Viet Nam for which data are not available; includes small amounts produced in Egypt.

c/ Concentrate content.

Table 16. Production of manufactured zinc[a/] in Africa

(Thousands of metric tons)

Countries	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978*	1979*
World [b/]	4,550	4,850	4,770	4,640	5,010	5,180	5,300	4,780	5,140	5,190	6,056,1	6,442
Africa	-	-	-	-	-	-	-	181,2	171,1	193,2	190,7	184,6
Algeria	-	-	-	-	-	-	8,0	8,0	-	16,0	25.7	27,3
Zaire	62,6	63,7	63,7	62,7	66,7	66,0	68,7	65,6	60,6	51,0	43,5	43,7
Zambia	53,2	50,2	53,5	57,1	55,9	35,5	58,3	46,8	37,1	40,0	42,4	38,2

Source: United Nations Statistical Yearbook, 1978.
Industries et travaux d'outre-mer, No. 318, May 1980.
*World Metal Statistics, January, 1981

a/ Zinc obtained from zinc ores and concentrates, distilled zinc and zinc obtained directly from ores through electrolysis (primary forms), zinc obtained from waste (secondary forms).

b/ Zinc from first fusion only.

Table 17: African exports of zinc ore (283.5)

(In metric tons)

Countries	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977*	1978*	1979
Morocco	79 800	75 774	37 501	19 456	21 649	26 195	26 449	26 499	19 091	21 115	15 409	-
Tunisia	4 200	5 270	13 353	16 143	16 400	15 300	10 600	8 195	12 009	5 449	3 575	-
Zaire	62 490	61 457	25 304	41 504	34 880	5 969	13 123	12 000*	10 000	-	-	-
Congo	-	-	-	-	1 722	12 235	626	-	2 938	-	-	-
Nigeria	-	43	-	-	299	119	1 230	-	-	-	-	-
Algeria	23 300	48 300	-	-	33 600*	8 600*	-	-	-	-	-	-

(Thousands of US dollars)

Countries	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977*	1978*	1979
Morocco	4 229	4 738	2 671	1 724	2 112	2 317	4 728	4 663	3 043	2 832	1 496	-
Tunisia	275	390	1 035	1 539	1 691	1 766	1 999	1 944	2 411	832	362	-
Zaire	300	2 467	1 087	3 226	2 144	454	2 170	1 944	1 460	-	-	-
Congo	-	-	-	-	241	1 451	97	-	308	-	-	-
Nigeria	-	-	-	-	30	10	231	-	-	-	-	-
Algeria	1 540	2 593	-	-	3 264	927	-	-	-	-	-	-

Sources: *Yearbook of International Trade Statistics, 1979.

ECA Statistics Division, June 1980.

Table 18: African exports of zinc metal and alloys (686.1)

(Metric tons)

Countries	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977*	1978	1979
Zambia	45 026	53 586	50 343	49 453	60 572	51 115	50 227	41 264	48 941	36 470	-	-
Zaire	34 252	57 882	62 679	64 293	67 040	60 147	63 101	41 385	40 000*	-	-	-
	79 278	111 468	113 022	133 746	127 612	111 262	113 328	82 649	88 941	36 470		

(Thousands of US dollars)

Countries	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977*	1978	1979
Zambia	12 546	17 364	15 345	16 110	22 914	25 906	39 103	31 619	33 772	22 715	25 330	
Zaire	8 011	13 903	16 733	18 234	23 910	32 472	41 978	30 224	26 320	95 927	36 725	
Nigeria								4 755	4 560	10 324	11590	

Sources: ECA Statistics Division, June 1980

Yearbook of International Trade Statistics, 1979.

Table 19: African zinc imports (686)

Importing countries	1968		1969		1970		1971		1972	
	MT	Thousands of US dollars	MT	Thousands of US dollars	MT	Thousands of US dollars	MT	Thousands of US dollars	MT	Thousands of US dollars
Kenya			1923	607	2937	1,072	2635	987	3681	1,537
Uganda		257	1668	487	1326	415	1799	617	1117	438
United Republic of Tanzania	1850	538	1983	611	2143	738	2355	872	2409	1100

Importing countries	1973		1974		1975		1976		1977		1978*		1979
	MT	Thousands of US dollars	MT	Thousands of US dollars	MT	Thousands of US dollars	MT	Thousands of US dollars	MT	Thousands of US dollars	MT	Thousands of US dollars	
Kenya			5650	4,845		1,571	3397	3,115	4274	4,271	10218	6,052	
Uganda	332	189	363	441	169	135	31	33	-	-	-	-	
United Republic of Tanzania	3995	2218	4210	3,360	3864	3,200	4096	3,319	-	-	-	-	
Nigeria						11,294		10,607		13,292		5,634	
Egypt						8,807		2,411		1,663		4,133	2,241

Sources: *Yearbook of International Trade Statistics.

ECA Statistics Division, June 1980.

Reference prices of raw materials

(Annual averages: London Exchange)

Year	Aluminium [a/]	Tin [b/]	Zinc [c/]
1976	40 36	4242	394,7
1977	51,89	6172	338,5
1978	60,09	6697	308,7
1979	70,25	7282	350,5
1980	85,45	7224	327,4
1981	74,73	7065	423,9

Sources: Monthly Commodity Price Bulletin, May 1980

a/ US cents/LB.

b/ Pounds sterling/metric ton.

c/ Pounds sterling/metric ton.